ASSIGNMENT 2: POSTLAB FOR TECHNIQUE LAB 2 (SPIROMETRY)

DUE DATE: <u>Lab Week 5 (L1: 02/25; L2: 02/22), beginning of lab</u>
POINT TOTAL: 2.5% final grade
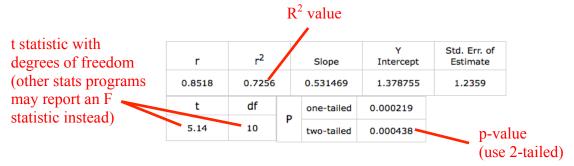**FORMAT REQUIRED:** email or hard copy
ASSIGNMENT DESCRIPTION:

For this assignment, you should write a Results section in scientific style describing the outcome of our spirometry measurements. This should include **a brief text section describing the results in paragraph form (probably one to two paragraphs)**, which will include the outcome of **two statistical tests**. Also include the **two figures** specified below. Make sure to reference your figures in the text and give them appropriate captions. Refer to the course *Writing guide* on moodle for a detailed refresher on the contents of a Results section, and the *Figure guides #1* and *#2* and/or *Basic stats guide* for info on making graphs and performing t-tests, if you need them.

Detailed instructions:
    (1) Comparison of VC between two categories (your choice): *either* smokers vs non-smokers, *or* men vs. women. Include the outcome of statistical comparison (independent samples t-test), and a bar graph (Figure 1) showing the difference between the two groups, with error bars (95% confidence intervals).

    (2) Comparison of predicted VC with measured VC. Include the outcome of statistical comparison (regression), and a scatterplot (figure 2) with regression line.

        In VassarStats, the data table containing the needed statistics for a regression looks like this (**NOTE:** this analysis was **not** run with our class data, it is only an example):

R^2 value

t statistic with degrees of freedom (other stats programs may report an F statistic instead)

r	r^2	Slope	Y Intercept	Std. Err. of Estimate
0.8518	0.7256	0.531469	1.378755	1.2359

t	df	P		
			one-tailed	0.000219
5.14	10		two-tailed	0.000438

p-value (use 2-tailed)

    (3) The FEV1/FVC x 100 index (the *Tiffeneau-Pinelli* index) is used to diagnose suspected pulmonary disease. Normal values for college-age adults are in the 80-85 range. Pulmonary disorders can lead to elevated or reduced indices (see Table 1 in the lab protocol); e.g., if the index is below 70, further tests are warranted for obstructive pulmonary diseases. Report the mean ± standard error Tiffeneau values for the normal, simulated obstructed, and simulated restricted conditions. You can state these values in the paragraph text or, if you prefer, state them in a table that you refer to in the text.

GRADING RUBRIC FOR THIS ASSIGNMENT:

Content (2%)
Results are described clearly and in appropriate detail in paragraph form (1%)
All required statistical tests are clearly reported in the text (0.5%)
All required figures are included and are readable, informative, properly captioned, and
    referenced in the text (0.5%)

Presentation (0.5%)
Text is written in scientific style (0.25%)
Grammar and spelling are correct (0.25%)